Major Influencing Factors of Out-of-School Children in West Java Province, Indonesia

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Abstract: In 2022, a high percentage of out-of-school children (OOSC) within the age group of 13–18 years indicated a significant challenge to achieving universal access to high-quality education. Therefore, this research aims to determine the major factors underlying this issue by applying logistic regression analysis and testing the relationship among independent variables using generalized structural equation modeling (GSEM). This case study, located in West Java Province, Indonesia, involved a sample of 1,148 children selected through a cross-section purposive sampling design. The results of the logistic regression analysis indicated that the main factors of OOSC with the highest odds ratio are excessive absence for more than one month, students working while attending school, and poor academic performance. Furthermore, the results of GSEM demonstrate the significant contribution of teacher factors to student absenteeism, children working while attending school, and low academic achievement. Therefore, it is necessary to improve teacher quality, particularly teachers' social competence, increase student-teacher relationships, change students' perceptions of education from bad to good, and increase parent/guardian involvement in educating their children to address the issue of OOSC in Indonesia.

Keywords: *absenteeism, working status, poor academic performance, teacher quality.*

1. Introduction

The fourth Sustainable Development Goal, "Quality Education for All," guarantees lifelong learning and universal access to high-quality education. According to the United Nations Children's Fund (UNICEF), globally, 222 million children and adolescents are facing crises, with 78.2 million not attending school in 2022. The school enrollment rate, particularly in developing countries, is concerning. In 2022, in Indonesia, a developing Southeast Asian country, 55.152 million are school-age children (7–18 years old), accounting for 19.99% of the overall population.[1] Consequently, the quality of children's education will significantly affect Indonesian economic growth and impact the country's economy.

In the academic year 2022–2023, Indonesia's net enrollment rate (NER) was 91.81% for primary school (7–12 years), 79.35% for lower secondary education (13–15 years), and 68.87%

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1 According to the Statistics of Indonesia report (2023), the population of Indonesia is projected to be 275.77 million people in 2022. According to the Ministry of Education, Culture, Research and Technology (2023), the number of school-age children in Indonesia (7–18 years old) in 2022 was 55.152 million people.

for upper secondary education (16–18 years) (Ministry of Education, Culture, Research, and Technology 2023). This indicated that many school-age children (13–18 years) lack access to education. Hence, the global issue of out-of-school children (OOSC) highlights a serious deficiency in Indonesia's education system. The OOSC in Indonesia, as defined, are children between the ages of 7 and 18 years with limited access to formal and informal education. The OOSC category includes those who have never formally enrolled in a school, those who dropped out after being registered, and those who graduated but did not continue to a higher level.[2]

The UNESCO Institute for Statistics (UIS) has been assessing school dropout rates in 192 countries since 2000. According to Statistics Indonesia, OOSC in Indonesia reached approximately 4.17 million in 2018, which is less than the estimated 6.9 million by the UIS in 2015 (UIS 2019).[3] The number of OOSC increased to 4.29 million in 2019. To mitigate this issue, the Indonesian government introduced the Education Operational Assistance program known as "Biaya Operasional Pendidikan" (BOP)[4] in 2019 to promote the reentry of OOSC into the education system through non-formal education.[5] Nevertheless, this program could only reduce the number of OOSC by around 210,000, leaving 4.08 million OOSC in 2020.

In 2020, the Indonesian government accelerated the implementation of compulsory education, extending the education period from 9 to 12 years,[6] to increase the number of students who completed upper secondary school (Kusumah 2021). In the same year, the Indonesian government implemented a comprehensive nationwide strategy to address the problem of OOSC to decrease the number of OOSC. However, this approach was only able to reduce the number of children not attending school by approximately 150,000, with a total of 3.93 million OOSC in 2021. In 2022, the number of OOSC increased by 150,000, reaching 4.08 million, indicating that the policies implemented by the Indonesian government have failed to decrease the number of OOSC consistently and significantly.

Several factors contribute to the decisions of students to drop out of school, such as limited ability or motivation, reduced expected benefits from school, and limited financial resources (Tsaneva 2017). Based on the 2018 Program for International Student Assessment (PISA) results, one of Indonesia's main issues that leads to dropping out of school is excessive absenteeism (OECD 2019). Moreover, the findings of the 2021 national socioeconomic survey of sociocultural and educational

2 According to the National Strategy for handling out-of-school children (OOSC) year 2020, the definition of out-of-school children in Indonesia are those aged 7–18 years without access to formal or non-formal education.

3 The UNESCO Institute of Statistics (UIS) conducted estimations for several countries with the largest out-of-school populations in 2015 and used a new model approach in 2020. The estimation results conducted by the UIS in 2015 demonstrate that the population of OOSC in Indonesia in 2018 will reach 6.9 million children. However, Statistics Indonesia data in 2019 reveal that the number of children outside of school in 2018 was 4.17 million.

4 Based on the Minister of Education and Culture Regulation No. 7 of 2019, beginning in 2019, the central government allocated non-physical DAK for Operational Assistance for the Delivery of Equal Education known as "Biaya Operasional Pendidikan" (BOP). BOP funds are allocated to regions based on the number of students in non-formal education institutions/units organized according to basic (packages A and B) and secondary (package C) education levels.

5 The Strategic Plan of the Ministry of Education and Culture of the Republic of Indonesia (2020–2024): it is a strategy for decreasing the number of OOSC by returning them to the education system through non-formal education, which pertains to equivalency education and consists of packages A (equivalent to primary school), B (equivalent to lower secondary school), and C (equivalent to upper secondary school).

6 Strategic Plan of the Ministry of Education and Culture of the Republic of Indonesia (2020–2024): one of the strategies is to increase equal access to educational services at all levels and accelerate the implementation of a 12-year compulsory education period.

modules conducted by the Central Statistics Agency in Indonesia support the continued relevance of this rationale. The survey results indicate that economic issues, such as the inability to pay school fees, or to get a job, and feelings of shame are due to economic conditions for a significant proportion of OOSC (47.19%). In addition, a proportion of 30.39% is due to marriage, domestic responsibilities, dissatisfaction with education, peer harassment, disability, and the cumulative effects of the COVID-19 pandemic. Meanwhile, 20.5% of the respondents did not specify why they did not attend school. Furthermore, the results point out that economic issues composed the highest percentage of OOSC problems in 2021. This implies that cash-assisted transfer programs, such as School Operational Assistance, known as "Bantuan Operasional Sekolah" (BOS) and the Smart Indonesia Program, known as "Program Indonesia Pintar" (PIP), which have been in place since 2008[7] and 2015,[8] respectively, have yet to solve economic issues that lead to school-age children dropping out of school.

A strategy of educational decentralization has been implemented since 2000.[9] Despite this national strategy being established to address OOSC problems throughout the country, the implementation of the plan in each region depends on the financial capacity of each district or city. Decentralization can improve educational outcomes, provided the local governments, communities, and schools have the resources and political will (Leer 2016).

The West Java Province provides the necessary resources and political commitment to handle the OOSC issue. The implementation of the national strategy for addressing OOSC in West Java Province is conducted in the following manner. Since 2020, the local government of West Java Province has been introducing cash transfer assistance programs (BOS and PIP) to complement the 12-year compulsory education policy by providing free education up to upper secondary school. Furthermore, in the same year, efforts have been made to encourage OOSC between the ages of 7 and 21 years into the education system through formal (open schools)[10] or non-formal education (equivalency programs).[11] Nevertheless, these strategies have yet to be effective in West Java Province. The cumulative number of OOSC recorded in 2022 in West Java Province was 912,084, which was the most among the 34 provinces in Indonesia.[12]

Therefore, it is essential to examine the main factors of OOSC in West Java Province, which has the largest population in Indonesia and is located close to the capital city. This will enable the formulation of more appropriate policy proposals to address the problem of OOSC in West Java Province. The majority of the ethnic groups in the country are in this province, showing the same

7 Minister of Education, Culture, Research and Technology Regulation Number 63 of 2022: educational unit operational assistance funds known as "Bantuan Operasional Sekolah" (BOS) refer to a specific type of non-physical allocation funds designated to provide financial support for non-personnel operational expenses of educational units.

8 Minister of Education and Culture Regulation Number 10 of 2020: The Smart Indonesia Program known as "Program Indonesia Pintar" (PIP) denotes assistance in the form of cash transfers, which expands access and learning opportunities from the government given to students and students from poor or vulnerable families since 2014.

9 Educational decentralization was when the central government transferred administrative and fiscal responsibility for health and secular education to district governments.

10 According to the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 72 of 2013, an open school is a form of formal education that stands alone but is part of a formal regular school that provides education using independent learning methods.

11 According to Statistics Indonesia in 2022, the number of OOSC in 34 provinces in Indonesia is 4,082,000. The highest OOSC is in West Java Province with 912,084 children, and the lowest is in North Kalimantan Province with 9,451 children.

12 Based on Statistics Indonesia, West Java ranks first as the province with the largest population in Indonesia, with the population of 49,405,800 in 2022.

characteristics as tribes in other regions. Thus, several suggestions for helping the Indonesian government to overcome the OOSC problem in Indonesia can be obtained from the analyses of OOSC in West Java Province.

2. Previous Studies

International research conducted by the UIS (2015) highlights the presence of obstacles, such as financial, access, and capacity, which hinder the achievement of basic education in Bangladesh, Kyrgyzstan, and Vietnam. Financial limitations indicate that poor households struggle to cover direct and indirect educational expenses in Pakistan, Sri Lanka, and Tajikistan, which is similar to the case of several African countries, such as Uganda and Nigeria, such that children must be allowed to work while attending school (Moyi 2013; Okoh et al. 2020). Kamran and Deen (2017) reveal that a strong correlation exists between the limited educational attainment of the household head in impoverished families and insufficient parental involvement in the educational pursuits of children in Pakistan. Moreover, child labor and inadequate parental support are found to significantly influence decreased academic performance among students in Thailand (Vayachuta et al. 2016) and increase the likelihood of grade repetition of OOSC in Guinea-Bissau (Marshall et al. 2020). In addition, Okoh et al. (2020) observe that the decision of Nigerian students to refrain from attending school is influenced by constraints in access such as distance to the educational institution.

The results of previous research conducted in Indonesia demonstrated similar results in which the employment status of the head of the household, family welfare, being part of a large family, having siblings who dropped out of school, working while schooling, and the high average cost of education are the leading causes of OOSC in a group of school children aged 7–18 years (Guntur and Lobo 2015; Muttaqin et al. 2017; Setyadharma 2017; and Zuilkowski et al. 2019). Apart from individual and family factors, Setyadharma (2017) analyzed school factors and government policies as causes of children dropping out of school. The results demonstrated that other factors, such as living in rural areas, attending schools in urban areas, poor national exam scores of lower secondary schools, and frequent transfers of students are the causes of children dropping out of school at the upper secondary school level in Central Java Province, Indonesia.

Previous research findings provide insight into developing variables that capture elements that influence children dropping out of school. The results indicate several variables that fall under the individual (e.g., gender and home location [urban or rural areas]) and family (education of head of household and number of family members) categories as the most frequently mentioned ones in previous research. Moreover, quantitative analysis suggests that they are critical variables. Based on previous studies conducted in national and specific regions in Indonesia, such as Nusa Tenggara and Central Java Province, research that examines the influence of school and teacher factors on the decision of children to become OOSC is lacking.

Therefore, this study fills the research gap by adding school and teacher factors to complement individual and family variables. School factors in this study include distance from home to school, type of school (public or private), receipt of government cash assistance, and being bullied by peers at school. Further, teacher factors include students' perceptions of teacher quality at school and student-teacher relationships. Another factor related to teachers is the quality of discussions between parents and teachers. Student-teacher relationships and discussions between parents and teachers indicate teachers' quality regarding their social competence. The social competence of teachers is demonstrated through the following: (1) They are inclusive, act objectively, and do not discriminate against students; (2) They communicate effectively, empathize, and are polite toward fellow educators,

and (3) They communicate effectively verbally and in writing with students and their parents.

Although previous studies conducted by other researchers and surveys led by the Central Statistics Agency have shown the causes of dropping out of school, the roots of the problem still need to be clarified. Research regarding children's decisions to drop out of school as well as the reasons and processes behind them still need to be researched. Thus, this research aims to determine the main factors of OOSC by adding school and teacher factors as independent variables causing OOSC. Furthermore, the relationship between these factors will be analyzed to determine the direct and indirect effects of OOSC.

3. Methodology

(1) Study Area

This study used a purposive sampling method based on general and specific criteria. The general criteria are based on the completion of 9 years and 12 years of compulsory education (gross enrollment rate (GER) > 95%).[13] The specific criteria for regency areas are the classification of the number of children not in school based on high, medium, and low categories. Meanwhile, the particular criteria for city areas are based on city characteristics and spatial location. The scope of this research is three regencies (i.e., Ciamis, Garut, and Subang) and three cities (i.e., Bogor, Bandung, and Cirebon). The determination of the six regencies/cities is based on data on GER achievements and number of OOSC in West Java Province published by Statistics Indonesia in 2022 with the following details:

1) The GER achievements of Ciamis Regency demonstrate the completion of 9 years and 12 years of compulsory education with the number of children not attending school under the low category (16,536).
2) The GER achievements of Garut Regency present the completion of 9 years of compulsory education (99.60%) with the need to complete 12 years of compulsory education and number of children not attending school under the high category (57,487).
3) The GER achievements of Subang Regency include the completion of 9 years of compulsory education with GER achievements of more than 100% and the number of children not attending school under the medium category (28,648).
4) The GER achievements of Bogor City indicate that 9- and 12-year compulsory education still needs to be completed with the number of children not attending school under the low category (17,612). Based on characteristics, Bogor is one of the buffer or satellite cities of the national capital, Jakarta. Meanwhile, based on spatial location, the city of Bogor is in the west of West Java Province.
5) The GER achievements of Bandung City suggest that 9- and 12-year compulsory education still needs to be completed with the number of children not attending school under the high category (30,652). Based on characteristics, Bandung City is the capital of West Java Province. Meanwhile, it is right in the center of West Java Province based on spatial location.

13 According to the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, the gross enrollment rate (GER) is defined as the percentage of students registered at a certain level of education compared with the population of a certain school-age group. The 9-year compulsory education is considered completed if the GER achievement is more than 95% at the lower secondary school level. The 12-year compulsory education is considered completed if the GER achievement is more than 95% at the upper secondary school level.

6) The GER achievements of Cirebon City indicate that 9-year and 12-year compulsory education still needs to be completed with the number of children not attending school under the lowest category (5,402). Based on characteristics, Cirebon City is the smallest one in West Java Province with a spatial location in the east and a border area with Central Java Province.

(2) Data and Variables

The present study utilizes primary methods of data collection, specifically a cross-sectional design with a quantitative research approach using a questionnaire, to investigate the factors that contribute to OOSC. The questionnaire assesses several aspects, including individual, family, school, and teacher characteristics. The modified version of the questionnaire was previously developed by Setyadharma (2017), from which the determinants of student dropout are also derived. This study introduced variables that were excluded from the initial iteration of the Setyadharma (2017) models. In addition, the assessment consists of an open-ended response section in which students are provided with a box for articulating their own reasoning or rationale for the causes of OOSC.

The study recruited 1,148 participants who are students of formal and non-formal education with 574 for each category. This study defined students of non-formal education as individuals with experience of dropping out of formal education. Meanwhile, students of formal education are those currently enrolled in formal schools.

The variables are OOSC (dependent) and gender, home location, working while at school, perception of education, academic performance, suspension from school, absenteeism for more than one month (excessive absenteeism), household head education of at least a university degree, parental academic support, family size, inability to pay school fees, school type, participation in a cash transfer program, distance from school exceeding 10 km, bullying by peers or teachers, teacher quality, and quality student-teacher relationships (independent).

(3) Data Analysis

Analysis was conducted using Stata 17. Descriptive statistics were used to observe the characteristics of OOSC. Moreover, a chi-square test was performed to test the significance of the association between the dependent and independent variables.

The equation for logistic regression analysis is derived as follows:

$$ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots . \beta_n X_n, \qquad (1)$$

Where π…is probability of OOSC, $\beta_1 \ldots . \beta_n$ are regression coefficients indicating the relative effect of particularly dependent variables on the dependent variable, and $\chi_{1 \ldots} \chi_n$ are independent variables.

The study employed GSEM for analysis to assess relationships between factors and the main outcome variable (OOSC) as direct and indirect effects. Each domain of mediation was a binary variable that the Bernoulli family fitted and a logit link function. The Bernoulli family refers to a binary response variable (i.e., working while attending school, academic performance, absenteeism, and OOSC). Collinearity was diagnosed using the Variance Inflation Factors (VIF) test. VIF values detected no multicollinearity among dependent variables. Analysis began with a hypothesized model (Figure 1). Modifications were taken interactively by adding a path link. Ultimately, the

study retained an identified model with minimum information criteria. The final model was selected based on the path coefficient's statistical significance, the relationship's theoretical meaningfulness, and the minimum information criteria. The determinant factors of OOSC were identified according to adjusted odds ratios with corresponding 95% confidence intervals (CI) and p-values <0.05.

4. Results and Discussion

The sample consisted of 1,148 respondents, with descriptive statistics of the characteristics sample of OOSC (Appendix 1). According to Statistics of Indonesian data (2022) there were 912,084 OOSC in West Java Province in 2022. The OOSC category size was 30,098 (0.6%) for primary school-aged children (7–12 years), 203,755 (8.53%) for lower secondary school-age children (13–15 years), and 678,231 (27.16%) for upper secondary school (16–18 years). Table 1 reveals that 1,148 children (in school and out-of-school care) participated in this study, including 358 lower secondary school-age children (13–15 years), 597 upper secondary school-age children (16–18 years), and 193 overage children (19–21 years). According to the research, there were 574 OOSC, including 93 lower secondary school-age children (13–15 years), 300 upper secondary school-age children (16–18 years), and 181 overage adolescents (19–21 years). This study focuses on the gender-based characteristics of children; thus, the proportion of males and females was comparable with 677 (58.97%) females and 471 (41.02%) males. The cases of children working while at school are 125 (21.77%) in the in-school group of children and 346 (60.27%) in the group of OOSC. Based on the characteristics of children with excessive absenteeism, the study observed striking differences between in-school and OOSC, namely, 15 (2.61%) and 86 (14.98%), respectively. Surprisingly, the number of children with low academic performance does not significantly differ between children in and out of school, namely 360 (62.71%) and 487 (84.84%), respectively.

Table 1. Weighted percentage distribution of out-of-school children (OOSC) by characteristics

No.	Demographic Variables	In-school		Out-of-School		Total	
		Number	Proportion	Number	Proportion	Number	Proportion
1.	**Age**						
	13–15	265	46.16	93	16.20	358	31.18
	16–18	297	51.74	300	52.26	597	52.00
	19–21	12	2.09	181	31.53	193	16.81
2.	**Gender**						
	Female	361	62.89	316	55.05	677	58.97
	Male	213	37.10	258	44.94	471	41.02
3.	**Home location**						
	Rural	284	49.47	321	55.92	605	52.70
	Urban	290	50.52	253	44.07	543	47.29
4.	**Working while at school**						
	Yes	125	21.77	346	60.27	471	41.02
	No	449	78.22	228	39.72	677	58.97
5.	**Absenteeism more than one month**						
	Yes	15	2.61	86	14.98	101	8.79
	No	559	97.38	488	85.01	1,047	91.20
6.	**Academic performance**						
	Low	360	62.71	487	84.84	847	73.78
	High	214	37.28	87	15.15	301	26.21

Source: Author 2023

Table 2 shows that the major factors of OOSC in West Java Province are excessive absenteeism, lack of parental encouragement for children to study well, children working while at school, low academic achievement, the lack of discussion of academic achievement by parents with teachers, unreceived government cash assistance program, inability to pay school fees, home distance from school of >10 km, home location (urban or rural areas; with an alpha of 1%), and bullying by peers or teachers (with an alpha of 5%).

Table 2. Logistic regression models for examining the main factors of OOSC

Variables	OOSC Odds ratio
Individual factors	
Gender (male = 1, female = 0)	0.969
	(0.153)
Home location (urban = 1, rural = 0)	1.661***
	(0.254)
Working while at school (yes = 1, no = 0)	4.212***
	(0.677)
Academic performance (low: 5.00–8.50 = 1, high > 8.50 = 0)	2.803***
	(0.495)
Perception of education (bad = 1, good = 0)	1.198
	(0.535)
Absenteeism more than one month (yes = 1, no = 0)	10.51***
	(4.296)
Family factors	
Education of head of household at least a university degree	0.141***
	(0.0538)
Academic support from parents:	
a. Your parents ever encouraged you to study well (no support = 1, support = 0)	4.444***
	(2.154)
b. Your parents ever talked/discussed with teacher about your development/activities in school (no support = 1, support = 0)	2.718***
	(0.449)
Family size	1.203***
	(0.0538)
Inability to pay school fees (yes = 1, no = 0)	1.898***
	(0.289)
School factors	
School distance more than 10 km (yes = 1, no = 0)	1.802***
	(0.339)
Government's cash transfer program (unreceived = 1, received = 0)	1.942***
	(0.299)
Bullying by peers or teachers (yes = 1, no = 0)	1.613**
	(0.346)
School type (private = 1, public = 0)	0.769*
	(0.117)
Teacher factors	
Student–teacher relationships (bad = 1, good = 0)	1.731
	(0.777)
Teacher quality (bad = 1, good = 0)	1.995
	(1.304)

Note. Dependent variable: out-of-school children (OOSC = 1, in school = 0).
A constant is also included in each model, but its coefficient is not reported.
***$p \leq 0.01$, **$p \leq 0.05$, and *$p \leq 0.1$.

Table 3 indicates that home location, working while at school, academic performance, absenteeism, household head education of at least a university degree, academic support from parents, family size, inability to pay school fees, home distance from school more than 10 km, unreceived government cash transfer program, and bullying by peers and/or teachers exerted direct effects on OOSC. Meanwhile, other variables exert direct and indirect effects on OOSC such as working while at school, absenteeism, household head education of at least a university degree, inability to pay school fees, and bullying by peers. Meanwhile, variables that indirectly influence OOSC are gender, perception of education, school type, relationships between teachers and students, and teacher quality.

Table 3. Generalized structural equation modeling coefficient estimates of the direct, indirect, and total effects factors on out-of-school children.

Variables	Direct Effects B (95% CI)	Indirect Effects B (95% CI)	Total Effects B (95% CI)
Individual factors			
Gender (male = 1, female = 0)	–	1.00***	1.00***
Home location (urban = 1, rural = 0)	0.53***	–	0.53***
Working while at school (yes = 1, no = 0)	1.40***	0.67***	2.07***
Academic performance (low: 5.00–8.50 = 1, high > 8.50 = 0)	1.10***		1.10***
Perception of education (bad = 1, good = 0)	–	0.82**	0.82**
Absenteeism more than one month (yes = 1, no = 0)	2.40***	0.70***	3.10***
Family factors			
Education of head of household at least a university degree	−1.90***	−1.20***	−3.10***
Academic support from parents:			
a. Your parents ever encouraged you to study well (no support = 1, support = 0)	1.60***	–	1.60***
b. Your parents ever talked/discussed with teachers about your development/activities in school (no support = 1, support = 0)	0.99***	–	0.99***
Family size	0.18***	–	0.18***
Inability to pay school fees (yes = 1, no = 0)	0.59***	0.79***	1.38***
School factors			
Home distance more than 10 km from school (yes = 1, no = 0)	0.57***	–	0.57***
Unreceived cash transfer from the government to poor students (yes = 1, no = 0)	0.64***	–	0.64***
Bullying by peers or teachers (yes = 1, no = 0)	0.46**	0.95***	1.41***
School type (private = 1, public = 0)		0.55**	0.55**
Teacher factors			
Student-teacher relationships (bad = 1, good = 0)		1.11***	1.11***
Teacher quality (bad = 1, good = 0)		0.92**	0.92**

***p ≤ 0.01, **p ≤ 0.05, and *p ≤ 0.1.

According to the logistic regression (Table 2) and GSEM (Table 3) analyses, the major factors of OOSC with the highest odds ratio and total effects are absenteeism (OR = 10.51, B = 3.10), working while at school (OR = 4.21, B = 2.07), lack of support from parents (OR = 4.44, B = 1.60), low academic performance (OR = 2.80, B = 1.1), and the lack of discussion by parents with teachers about the academic development their children (OR = 2.71, B = 0.9).

Furthermore, the results of logistic regression analysis of home location indicate that the odds ratio of children living in urban areas becoming OOSC is higher than that of school-aged children living in rural areas. This result differs from that of Setyadharma (2017) in Central Java Province, Indonesia. The reason is that opportunities for informal sector employment in urban West Java

Province are more significant than those in rural areas, which enables children to attend school while working. The results demonstrated that the odds ratio of children who work while at school is 4.21 higher than children who do not work while at school. The results of GSEM analyses (Figure 1) provide a more in-depth explanation of the findings reported by Lobo (2015), which identified that children do not go to school in East Nusa Tenggara Province because they are busy working while attending school.

Figure 1 shows that teacher quality, inability to pay school fees, and household head education of at least a university degree indirectly influence OOSC but directly influence children who work while attending school. An education of at least a university degree for the head of the household exhibited a negative coefficient, which indicates that children whose heads of household with a bachelor's degree can reduce the possibility of children working while attending school. Meanwhile, teacher quality exerted a higher direct effect on children working than the inability to pay school fees. This finding implies that children work while attending school not only because they cannot pay school fees but also because of their perceptions of the low quality of teachers.

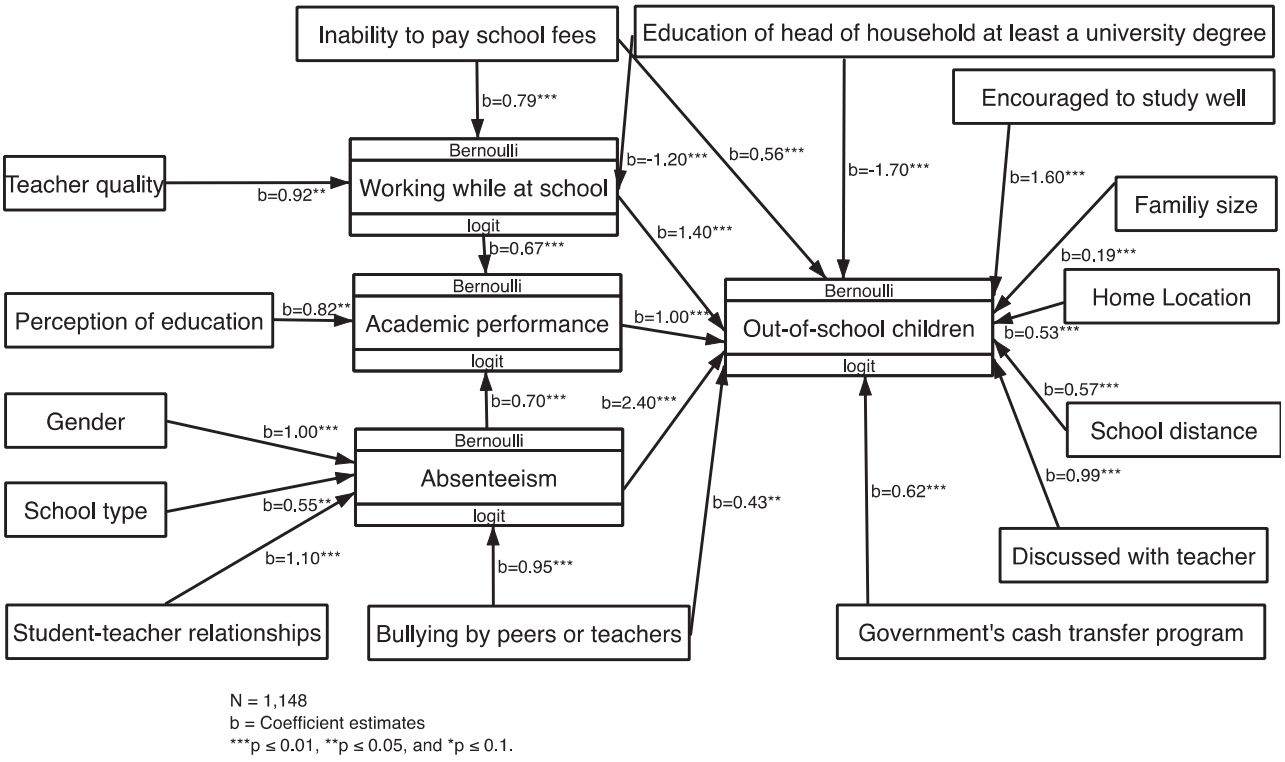

Figure 1. Path analysis using coefficient estimates generalized structural equation modeling of out-of-school children in West Java Province
Source: Author

In Indonesia, teacher quality can be reflected through the competence of teachers (Panggabean and Himawan 2016). The Indonesian government assessed the teacher quality of 2.9 million teachers in Indonesia through the Teacher Competency Test in 2015.[14] Data from the Ministry of Education, Culture, Research, and Technology (MoECRT) demonstrate that the average Teacher Competency

14 According to the Education Balance Data released by the Ministry of Education and Culture of the Republic of Indonesia in 2016, the Indonesian government-conducted Teacher Competency Test has set a national minimum competency standard of a score of 55 for two fields, namely, pedagogical and professional competence.

Test score in West Java Province was 58.97, higher than the national minimum competency standard for teachers of the Republic of Indonesia, namely a score of 55.00. The Indonesian government has implemented a professional teacher education program from 2017 to the present to improve teacher competency.[15] Teachers who graduate from the teacher education program in Indonesia will receive a professional certificate. Alternatively, data from the MoECRT in 2022 suggested that the percentages of teachers in West Java Province with a professional license were only 36.5% and 56.9% at the lower and upper secondary school levels, respectively.[16] This statistic implies that the perceptions of students of the low quality of teachers are relevant to the low average test scores for teacher competency and the low percentage of teachers with professional certificates. Therefore, the efforts of the regional government of West Java Province to guarantee free education up to the upper secondary school level since 2020 are insufficient for overcoming the problem of children working while attending school, because solving the issue of low-quality teachers in West Java Province remains essential.

The results of GSEM also depict that another factor with the highest direct effect on OOSC is excessive absence (more than one month). The path analysis in Figure 1 implies that the factors that directly influence excessive absenteeism are gender (male), school type (private), poor relationships between teachers and students, and experiencing bullying by peers. Moreover, the results suggest that poor relationships between teachers and students exert the highest direct effect on excessive absenteeism compared with other factors. These findings, in line with the 2018 PISA results for Indonesia at the national level, display three characteristics of students with excessive absenteeism, namely, being male, attending private schools, and experiencing bullying from peers (OECD 2019). The originality of this research is in finding new factors that cause excessive absenteeism, namely the student-teacher relationships. Therefore, enhancing the quality of student-teacher relationships is essential to decrease the prevalence of students with excessive school absences.

Figure 1 depicts that children working while attending school, excessive absenteeism, and perceptions of education directly influence the low academic achievement of students. However, the perception of education exerted a more significant direct influence on low academic achievement than working while attending school and excessive absenteeism. A method for measuring students' perceptions about education is determining whether or not students like school or consider it a waste of time. The results show that the perception of students who do not like school and believe that school is a waste of time directly influences their low academic achievement. Thus, changing children's perception of education from bad to good is essential to increase academic performance. If children like attending school and believe that education is not a waste of time, it can decrease absenteeism and prioritize school over working.

Furthermore, the results of the GSEM analysis indicate important factors regarding parents' academic support; namely, the variables "encouraged to study well" and "discussed with teacher" are the most significant direct influences on OOSC. These findings align with the 2018 PISA results for Indonesia; schools with students from the socioeconomic background coming from the lowest 25–50% category face limited involvement in learning from parents and a lack of parental initiative in knowing their children's academic performance (OECD 2019).

Thus, the findings of this study revealed the issue of OOSC not only in West Java Province

15 Based on the 2005 Teacher and Lecturer Law, teachers in Indonesia must obtain four empathetic competencies, namely, personality, pedagogy, professional, and social.

16 According to the Education Balance Data released by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia in West Java Province in 2022, teachers with a professional license are in-service teachers who participated in an experienced teacher education program and obtained an educator certificate.

but also nationwide. This is due to the characteristics of West Java Province being similar to other regions in Indonesia, such as the problem and implementation of the strategy for handling OOSC issues, which are national policies. The ineffectiveness of central government policies, as executed through the national strategy for addressing OOSC in West Java Province, has resulted in a struggle to reduce the number of children not attending school effectively. The national and local governments so far have focused mainly on addressing difficulties from the economic perspective of students, such as direct financial assistance, which, according to the findings in this research, is not the main reason for OOSC. This study indicates that the teacher and school environment elements play a crucial role in the primary factors contributing to children's absenteeism from school.

Ultimately, this research suggests the need for policies to improve teacher quality, increase the quality of student-teacher relationships, change student perceptions of education from bad to good, and increase parent/guardian involvement in learning to decrease the number of OOSC. These factors are related to the teachers' social competence. Therefore, increasing teacher competence, particularly social competencies, through professional teacher education programs can be a strategic policy to address the problem of OOSC not only in West Java Province but also nationwide in Indonesia.

Conclusion and Recommendation

This study identified the major factors of OOSC in West Java Province, Indonesia, using a quantitative approach comprising logistic regression analysis and GSEM. The major factors of OOSC, based on the result of logistic regression analysis, are student absenteeism, working while attending school, low academic achievement, lack of encouragement from parents to children to study well until completion of education, lack of discussion between parents and teachers about the academic progress of children, and non-receipt of cash transfer from the government, inability to pay school fees, home distance from school more than 10 km, home location (urban), and bullying by peers and teachers.

Furthermore, an essential result of GSEM analysis refers to the relationship between the independent variables that directly or indirectly influence decisions about OOSC. The variables that directly affect OOSC with the highest coefficient estimates are absenteeism, working while at school, low academic performance, lack of support from parents, and lack of discussion between parents and teachers. The variables that indirectly influence OOSC are teacher factors, such as the low quality of teachers, poor student-teacher relationships, and bad student perception of education. Thus, the results of the analyses in this study suggest the need for policies to improve teacher quality, particularly in increasing teachers' social competencies in Indonesia.

The limitations of this study include absenteeism, teacher quality, and student-teacher relationships of direct student voice in the questionnaire for both OOSC and school students. Future research on this topic is necessary to examine the impact of professional teacher education programs on teacher competencies and the teachers' perspectives on the programs required to enhance their competencies, particularly social competencies.

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Appendix Table 1. Descriptive statistics of characteristic sample

Variable	Description	Obs	Mean	Std Dev	Min	Max
Dependent variable						
Out-of-school children	Dummy for children denoting whether or not they are OOSC (out-of-school children = 1, in school = 0)	1,148	0.50	0.500	0	1
Individual						
Gender	Dummy for children denoting gender (male = 1, female = 0)	1,148	0.409	0.491	0	1
Home location	Dummy for children denoting home location (urban = 1, rural = 0)	1,148	0.472	0.499		
Working while at school	Dummy for children denoting whether or not they ever earned money when they were in school (yes = 1, no = 0)	1,148	0.410	0.492	0	1
Academic performance	Dummy for children denoting their academic performance (low (5.01–8.50) = 1, high (>8.50) = 0)	1,148	0.737	0.440	0	1
Perception of education	A combination of dummy for children denoting whether they think school was a waste of time or not and/or whether they like school or not (bad = 1, good = 0)	1,148	0.039	0.194	0	1
Absenteeism	Dummy for children denoting their whether ever absenteeism more than one month (ever absenteeism = 1, never = 0)	1,148	0.087	0.283	0	1
Family						
Education of head of household at least a university degree	Indicates the household head a university degree (yes = 1, no = 0)	1,148	0.089	0.285	0	1
Parents academic support	a. Have your parents ever talked/discussed with teacher about your development/activities in school (never = 1, ever = 0)	1,148	0.663	0.472	0	1
	b. Have your parents ever encouraged you to study well in school (never = 1, ever = 0)	1,148	0.053	0.224	0	1
Family size	Indicates number of household members (including household head)	1,148	5.628	2.176	3	23
Inability to pay school fees	Dummy for children denoting whether they are ever inability to pay school fees while they were attending in school (yes = 1, no = 0)	1,148	0.471	0.499	0	1
School						
School type	Dummy denoting children school type (private school = 1, public school = 0)	1,148	0.460	0.498	0	1
School distance	Dummy denoting that children last school was more than 10km from their home (yes = 1, no = 0)	1,148	0.195	0.396	0	1
Government's cash transfer program	Dummy for children denoting whether they received money from the government's poor student's assistance program or not at in school (unreceived = 1, received = 0)	1,148	0.610	0.487	0	1
Bullying by peers or teachers	Dummy for children denoting whether they ever victim of bullying was attending in school (ever = 1, never = 0)	1,148	0.181	0.385	0	1
Teacher						
Teacher quality	Dummy for children denoting their teacher quality (bad = 1, good = 0)	1,148	0.045	0.208	0	1
Student–teacher relationships	Dummy for children denoting that their ever victim of bullying were attending in school (poor = 1, good = 0)	1,148	0.028	0.167	0	1